

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of:

VAN DIJK et al.

Group Art Unit: unknown

Application No.: unknown

Examiner: unknown

Filed: November 19, 2001

FOR: SHEET-SHAPED PRODUCT CONSISTING OF A THERMOSETTING RESIN
MIXTURE AND CARBON FIBRES

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November 19, 2001

PRELIMINARY AMENDMENT

Hon. Commissioner of Patents
Washington, D.C. 20231

Sir:

Prior to examination on the merits, please enter the following amendment in the application as follows:

IN THE SPECIFICATION:

At the top of the first page, just under the title, please insert:

--This is a Continuation of International Application No. PCT/NL00/00335
filed May 17, 2000, which designated the U.S. and was published in English--

IN THE CLAIMS:

Claims 1 - 8 have been amended as follows:

1. (Amended) A sheet-shaped product processable by flow moulding, comprising carbon fibres and a thermosetting resin mixture comprising a radical-curable resin as the matrix, wherein the carbon fibres are present in the form of mats that consist substantially of fibres with lengths of more than 1 cm, the volume percentage of the carbon fibres relative to the resin being less than 70% and the carbon fibres in the mats moving freely relative to one another when the sheet-shaped product is subjected to a pressure in a mould.
2. (Amended) The sheet-shaped product according to Claim 1, wherein the fibrous material consists entirely of carbon fibres.
3. (Amended) The sheet-shaped product according to Claim 2, wherein carbon fibres are present in the sheet-shaped product in the form of an isotropic or anisotropic mat.
4. (Amended) The sheet-shaped product according to Claim 1, wherein the surface weight of the fibrous material is between 150 and 700 g/m².
5. (Amended) The sheet-shaped product according to Claim 1, wherein the radical curable resin is an unsaturated polyester resin, vinyl ester resin or hybrid resin.
6. (Amended) The sheet-shaped product according to Claim 1, wherein the radical-curable resin has an elevated viscosity as a result of thickening.

7. (Amended) A process for the production of a sheet-shaped product according to Claim 1, comprising impregnating the mats with a radical-curable resin, followed by thickening of the resin to a predetermined viscosity .
8. (Amended) A process for the production of moulded parts with a tensile modulus of > 20 GPa, a tensile strength of > 200 MPa comprising flow moulding of sheet-shaped products obtained by the process according to Claim 7 at a pressure between 20 and 200×10^5 N/m².

Please add Claims 10-13 as new claims as follows.

10. (NEW) A process according to claim 8, wherein said tensile modulus is > 40 GPa.
11. (NEW) A process according to claim 8, wherein said tensile modulus is > 70 GPa.
12. (NEW) A process according to claim 8, wherein said tensile strength is > 500 MPa.
13. (NEW) A process according to claim 8, wherein said tensile strength is > 900 MPa.

Please cancel claim 9 without prejudice or disclaimer.


REMARKS

Upon entry of this Amendment, claims 1-8 and 10-13 will be pending of which claim 1 is independent. The claims have been amended to eliminate multiple dependencies and to employ more conventional U.S. claim language. Support for the amendments to claim 8 can be found, for example, on page 10, lines 3-10 of the originally filed specification. Support for new claims 10-13 can be found, for example, in originally presented claim 8. In addition, the specification has been amended to include a cross reference to the PCT parent application. It is respectfully submitted that no new matter has been introduced.

It is respectfully submitted that the Application is in condition for allowance and a Notice to that effect is courteously solicited. If any questions remain, however, the Examiner is encouraged to call undersigned to expedite the prosecution of this Application.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

A cross-reference to the PCT parent application has been added.

IN THE CLAIMS:

Claims 1 - 8 have been amended as follows:

1. (Amended) The sheet-shaped product processable by [means of] flow moulding, comprising carbon fibres and a thermosetting resin mixture [based on] comprising a radical-curable resin as the matrix, [characterised in that] wherein the carbon fibres are present in the form of mats that consist substantially of fibres with lengths of more than 1 cm, the volume percentage of the carbon fibres relative to the resin being less than 70% and the carbon fibres in the [mat] mats moving freely relative to one another when the sheet-shaped product is subjected to a pressure in a mould [so that, at that pressure and the employed lay-up percentage of the mould, a net end product with a homogeneous fibre distribution is formed].
2. (Amended) The sheet-shaped product according to Claim 1, [characterised in that] wherein the fibrous material consists entirely of carbon fibres.
3. (Amended) The sheet-shaped product according to Claim 2, [characterised in that the] wherein carbon fibres are present in the sheet-shaped product in the form of an isotropic or anisotropic mat.

4. (Amended) The sheet-shaped product according to [any one of Claims 1-3, characterised in that] Claim 1, wherein the surface weight of the fibrous material is between 150 and 700 g/m².
5. (Amended) The sheet-shaped product according to [any one of Claims 1-4, characterised in that] Claim 1, wherein the radical curable resin is an unsaturated polyester resin, vinyl ester resin or hybrid resin [is used as the radical-curable resin].
6. (Amended) Sheet-shaped product according to [any one of Claims 1-5, characterised in that] Claim 1, wherein the radical-curable resin has an elevated viscosity as a result of thickening.
7. (Amended) A process for the production of a sheet-shaped product according to Claim 1, comprising [in which fibrous material as described in Claims 1-6 is impregnated] impregnating the mats with a radical-curable resin, [after which] followed by thickening of the resin to a [desired] predetermined viscosity [takes place].
8. (Amended) A process for the production of moulded parts with a tensile modulus of > 20 GPa, [in particular > 40 GPa, and preferably > 70 GPa,] a tensile strength of > 200 MPa, [in particular > 500 Mpa, and preferably > 900 MPa, by means of] comprising flow moulding of sheet-shaped products obtained by the process according to Claim 7 at a pressure between 20 and 200 x 10⁵ N/m².

Claim 9 is cancelled

Claims 10-13 are added as new claims.